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# Puzzles as a didactic tool for development of mathematical abilities of junior schoolchildren in basic and additional mathematical education

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## Abstract

© 2018 by the authors. Pedagogical science has always faced the issue of finding effective means for achieving educational results. This problem is especially urgent today, when in the rapidly changing world the tools, which yesterday could be used to support the interest of schoolchildren in study of mathematics and could provide an opportunity for the development of their mathematical abilities, quickly become obsolete. Today it is very important to search for new means that foster the development of students with the help of mathematics and mechanisms for including mathematics in the educational process. Thus, the aim of the article is to analyze puzzles as a didactic tool and study the possibilities of using puzzles in the process of teaching junior schoolchildren mathematics, both in the classroom and extra-curricular activities. The leading method here is the modeling of the methodical training system in general and additional mathematical education of schoolchildren, with the inclusion of a new didactic tool that fosters the students' interest to the subject, develops individual mathematical abilities: logical thinking, abstraction, combining, operating spatial images, critical thinking, mathematical memory, etc. As a result of the research, the authors have determined the place, features and methodological aspects of the inclusion of puzzles in the process of teaching mathematics in general and additional school education. They can be used in the system of classical and creative math lessons and in extra-curricular activities of students: a mathematical club, a system of mathematical competitions, a mathematical camp, etc. The practical use of this model makes it possible to reduce the lack of tools in teaching for the development of students' mathematical abilities, which in its turn, makes it possible to speak of purposefully high results in students' mathematical activities, which is confirmed by the conducted experimental research.

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## Keywords

Development of mathematical abilities of schoolchildren, Increasing schoolchildren's interest to mathematics, Means of teaching mathematics, Puzzles, Teaching mathematics in secondary school

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